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# ***Presentation*** ***to the***

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## ***CIVIL WORKS REVIEW BOARD***

### ***May Branch, Fort Smith, Arkansas*** ***Feasibility Study***

***COL Wally Walters, Commander***  
***Army Corps of Engineers, Little Rock District***

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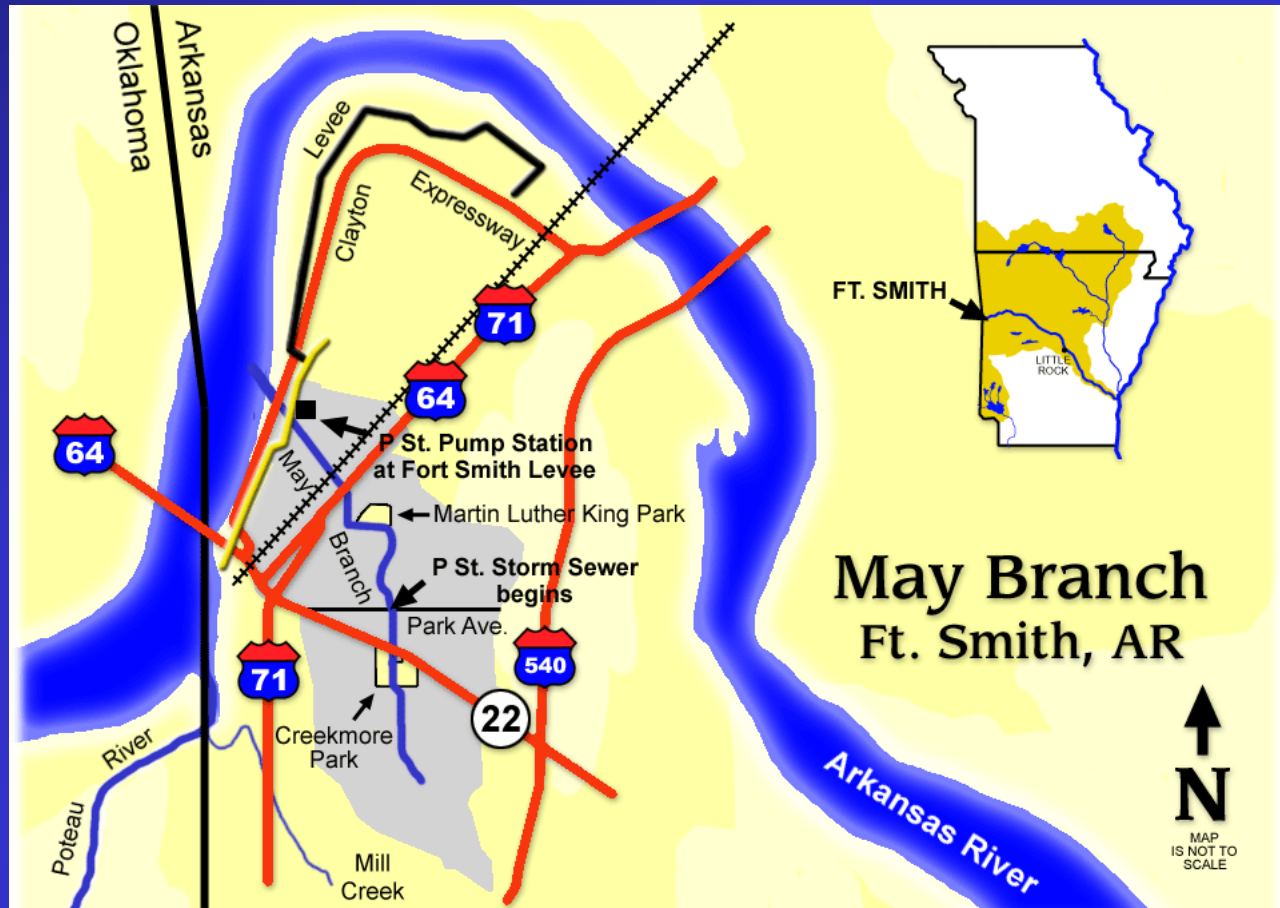
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***October 26, 2006***



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# Vicinity Map



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# ***Project Study Authorization***



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*RESOLVED BY THE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, that the Board of Engineers for Rivers and Harbors, established by Section 3 of the River and Harbor Act approved June 13, 1902, is hereby requested to review in cooperation with the States of Arkansas and Oklahoma, political subdivisions, agencies and instrumentalities thereof, and appropriated Federal agencies as a shared effort, the report of the Chief of Engineers on the Arkansas River and tributaries, published as House Document No. 308, seventy-fourth Congress, and other pertinent reports, with a view to determining whether any modification of the recommendations contained therein are advisable at this time, with particular reference to developing an implementable plan for storage, conservation, treatment, and conveyance of water in the Arkansas River and tributaries in Arkansas and Oklahoma, for municipal, industrial, and agricultural uses and other purposes. This study should include an assessment of the usability of the water for various uses.*

*(Adopted March 11, 1982)*

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# ***Purpose***

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- To present the findings and recommendations of the May Branch, Fort Smith, Arkansas, Feasibility Study and Environmental Assessment
- To demonstrate that the proposed project is technically feasible, economically justified, and environmentally sound

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# ***Problems and Opportunities***

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- Problems
  - Flood damages to industry, businesses, and residences
- Opportunity
  - Alleviate flood damages
  - Restore some minor aquatic habitat

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# ***Constraints***

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- Maintain the flood reduction provided by the Fort Smith Levee and P St. Pump Station
- Avoid potential contamination sites
- Minimize relocations
- Adhere to the open space criteria required under FEMA's HMGP
- Federal interest limit at Grand Ave.
- Avoid wetlands.





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# ***P Street Drain Outlet***



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# ***Park Avenue***

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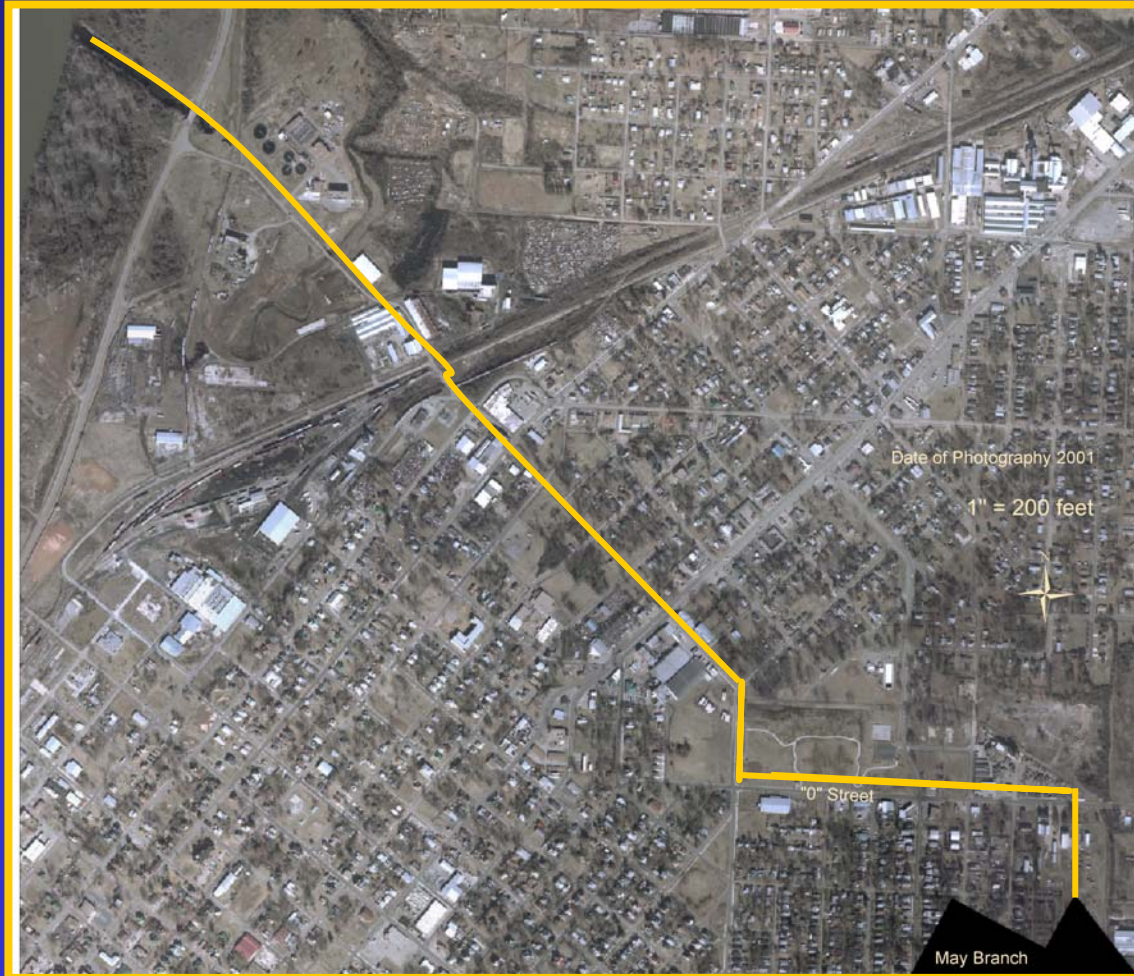
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# ***P Street Storm Drain***



**Existing  
Conditions,  
P St. Storm  
Drain  
Built in  
1910**

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# ***P Street at 9<sup>th</sup> Street***



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# ***Looking Upstream***

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# ***Upstream Flood Heights***



Figure 9.--FLOOD HEIGHTS ALONG MAY BRANCH.

This apartment building is located in the Elm Grove Housing Project on North P Street. The bottom and middle arrows show the heights of the August 1971 Flood and the Intermediate Regional Flood, respectively.

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# ***Arkhola and Grand Ave***

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**Channel Alignment  
tight fit between  
hill and Arkhola  
Plant**



**Grand Ave  
Limit of  
Federal  
Interest**

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# ***Alternative Plans***

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## **Evaluated:**

- **No Action**
- **Non-Structural, Relocate flood plain structures**
- **Structural**
  - Pump Stations
  - Tunnel construction
  - Channel Reconstruction with Road and Railroad Crossings

## **Effective Plan Selected to be Optimized:**

- **Channel Reconstruction with Road and Railroad Crossings**

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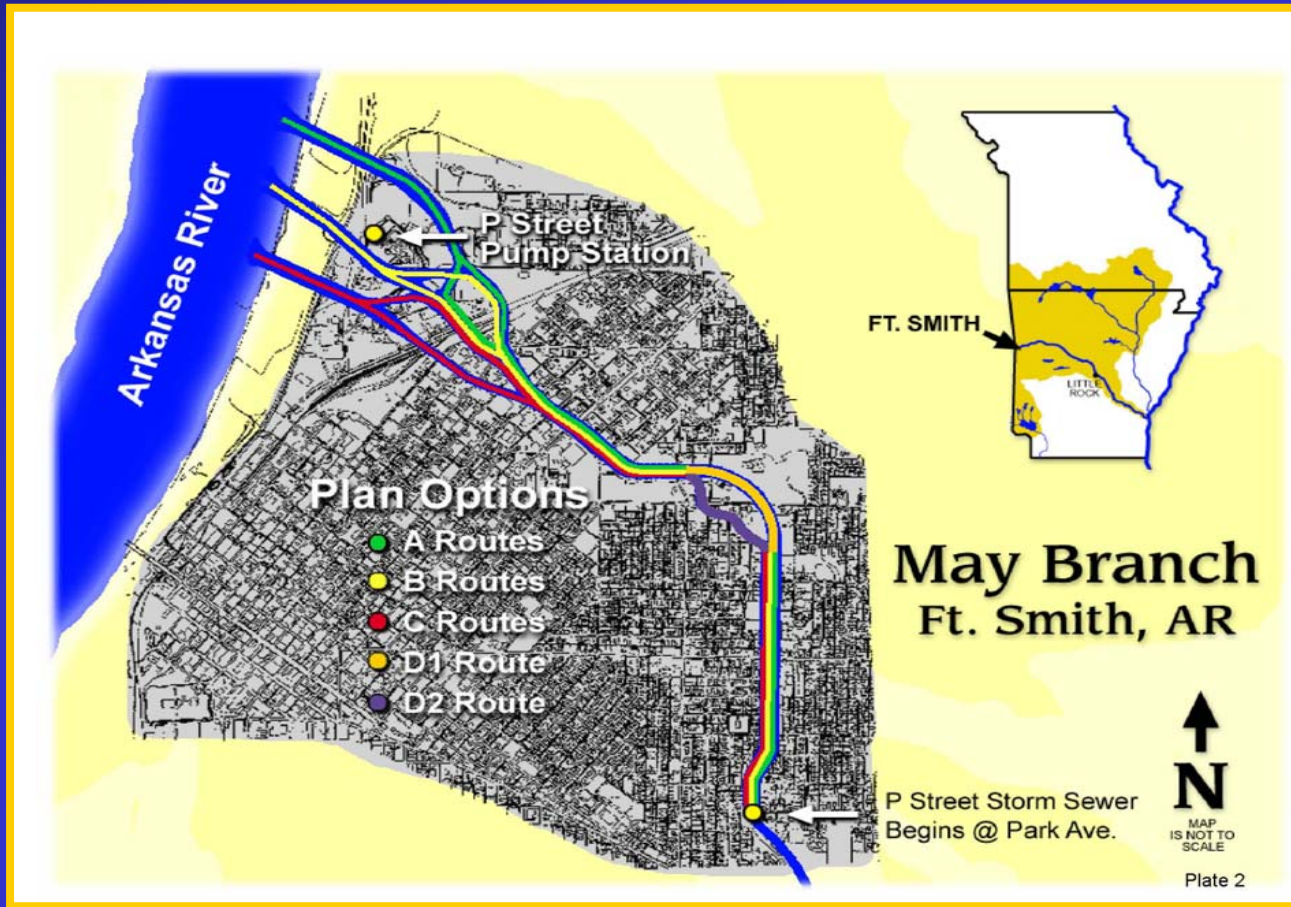
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# ***Plan Route Options***



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# ***NED/LPP Comparison***



<u><b>NED Costs and Benefits</b></u>	<u><b>Item</b></u>	<u><b>LPP Costs and Benefits</b></u>
<b>\$22,856,500</b>	<b>Project First Cost</b>	<b>\$24,813,100</b>
<b>\$24,861,500</b>	<b>Total Investment Cost</b>	<b>\$27,269,100</b>
<b>\$1,388,300</b>	<b>Interest &amp; Amortization</b>	<b>\$1,522,600</b>
<b><u>\$55,200</u></b>	<b>OMRR&amp;R</b>	<b><u>65,200</u></b>
<b>\$1,443,500</b>	<b>Total Average Annual Costs</b>	<b>\$1,587,800</b>
<b>\$1,443,500</b>	<b>Total Average Annual Benefits</b>	<b>\$1,723,300</b>
<b>\$252,200</b>	<b>Net Annual Benefits</b>	<b>\$135,500</b>
<b>1.17</b>	<b>Benefit/Cost Ratio</b>	<b>1.09</b>

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# ***Recommended Plan***

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Locally Preferred Plan Recommended as Approved  
by ASA(CW) 27 October 2005

- 2.77 miles of reconstructed channel
- 5 Railroad & 9 Road Crossings
- Hydraulic Control Structure at Levee
- Estimated cost = \$30.5 million
- Benefit-to-Cost Ratio = 1.09
- Net Annual Benefits = \$ 1.7 million

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# ***LPP COSTS AND BENEFITS***



<b>Investment Costs:</b>	<del>Project Construction Costs</del>	\$24,813,100
(3.8-year construction period)	Interest During Construction	<u>2,456,000</u>
(50-year period of analysis)	Total Investment Cost	<b>\$27,269,100</b>
<b>Average Annual Costs:</b>	Interest & Amortization	\$1,522,600
	OMRR&R	<u>65,200</u>
	Total Average Annual Costs	<b>\$1,587,800</b>
<b>Aver. Ann. NED Benefits:</b>	Flood Damage	\$1,366,800
	Emergency, Nonphys & Utility	269,400
	Auto, Flood Insurance & Repair	<u>87,100</u>
	Total Average Annual Benefits	<b>\$1,723,300</b>
<b>Net Annual Benefits:</b>		<b>\$135,500</b>
<b>Benefit/Cost Ratio:</b>	.82 @ 7% per EO 12893	<b>1.09 @ 5.125%</b>

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# ***Policy & Technical Review***

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- **Feasibility Scoping Meeting** **May 1999**
- **Independent Technical Review** **Aug 2004**
- **Alternative Plan Formulation Briefing** **Sep 2004**
- **Independent Technical Review** **Jul 2006**
- **HQ Policy/Public Review** **Sep 2006**

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# ***COST SHARING***



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<u>Reaches 1 - 4</u>	<u>Federal</u>	<u>NonFederal</u>	<u>Total</u>
Lands and Damages	\$ 144,700	\$3,296,700	\$3,441,400
Relocations	-	4,943,600	4,943,600
Channel & Control Structure	13,136,000	-	13,136,000
Engineering and Design	1,484,200	558,500	2,042,700
Construction Management	1,336,300	503,000	1,839,300
5% Cash Contribution	<u>(1,270,200)</u>	<u>1,270,200</u>	<u>-</u>
Total Cost, Reaches 1-4	\$14,831,000	\$10,572,000	\$25,403,000
<u>Total Cost, Reaches 5-6</u>	<u>-</u>	<u>5,082,000</u>	<u>5,082,000</u>
Total Cost, Reaches 1-6	\$14,831,000	\$15,654,000	\$30,485,000
Percent of Cost, Reaches 1-6	49%	51%	100%

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# Environmental Operating Principles

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- Project will reduce human suffering from flooding
- Study shared with the public and other agencies to solicit their comments
- Temporary project construction impacts with no cumulative impacts
- Channel reestablishment will sustain/support minor aquatic ecosystem's viability

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# ***Recommendation***

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**I recommend that the Civil Works Review Board approve the May Branch, Fort Smith, Arkansas, Feasibility Report and Environmental Assessment.**

- **The recommended plan is technically sound, environmentally acceptable, and economically feasible. It complies with all current policies and laws.**
- **The plan is supported by the local sponsor, the City of Fort Smith. The City has indicated a willingness and ability to provide all non-Federal requirements.**

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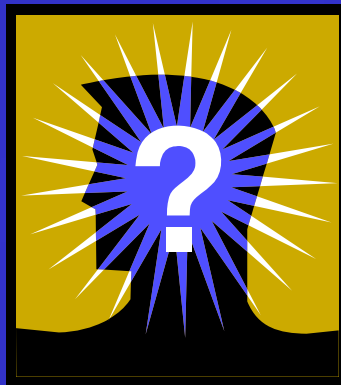
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# May Branch, Fort Smith, Arkansas Feasibility Study

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## Questions & Comments



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# ***CIVIL WORKS REVIEW BOARD***

May Branch, Fort Smith, Arkansas  
Flood Damage Reduction  
Feasibility Study  
By

Brigadier General Jeffrey J. Dorko  
Commander  
Southwestern Division

October 26, 2006

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# ***Rationale for SWD Support***

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- Concur with Little Rock District (SWL) Commander's findings and recommendations
- Report complies with all applicable policies and laws in place at this time.
- Anticipate a favorable response to the draft Chief's Report
- Plan supported by sponsor and Congressional delegation

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# ***Certification of Legal and Policy Compliance***

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- Legal certification by SWL Counsel on 3 July 2006
- Technical and Policy Compliance:
  - Technical Review provided by SWF/SWG technical experts
  - All comments resolved
  - SWD confirmed on 11 October 2006 that the project is technically, legally, and policy compliant

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# ***SWD Quality Assurance Activities***

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- SWD reviewed ITR comments/responses to ensure appropriate resolution
- Active participation by vertical team
- Worked with SWL to successfully resolve HQ review comments
- SWL certified that project is technically, legally, and policy compliant
- SWD confirmed on 11 October 2006 that the project is technically, legally, and policy compliant

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# ***SWD***

## ***Recommendation***

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- Release Final Feasibility Report for State and Agency Review.
- Complete Chief's Report NLT 31 December 2006 to be postured to meet a contingent authorization in the event Congress passes WRDA 2006.

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# ***Milestone Schedule***

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- Start S&A Review – 31 Oct 2006
- Complete Review – 5 Dec 2006
- Sign Chief's Report - 22 Dec 2006
- PCA Signed - Apr 2007
- Construction Complete - Dec 2013

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# ***SWD***

## ***12 Points***

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- Sustain:
  - District's system analysis in full partnership with the sponsor determined additional pump capacity not needed (#2).
  - Used Risk-Based Concepts in Planning and Design (#2).
  - Adaptive Planning and Design demonstrated review taking longer than the document preparation and complete ITR at each phase so that the technical work was corrected and finalized before each phase of work was reviewed for policy.
  - Experienced planner wrote report with only few changes required.
- Improve:
  - Processes to expedite resolution of issues
  - Communication of Risk Effectively

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# ***FY06 Budget Process***

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Questions?

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# Civil Works Review Board

*Significant Policy Review Concerns*

## **May Branch, Fort Smith, Arkansas Flood Damage Reduction Study**

Jay Warren, P.E.

Office of Water Project Review

Policy and Policy Compliance Division

Washington, DC – 26 October 2006



### Areas of Policy Concern:

- Recommendation Exemption
- Definition of Federal Interest
- Definition of the LPP
- Railroad Embankment Modifications
- Relocation Assistance Payments
- Business Income and Wage Losses





# Recommendation Exemption

Concern: The feasibility report recommends a locally-preferred plan with larger flow capacity features in Reaches 1 and 2 of the project than identified in the NED plan.

Reason: Policy requires that the NED plan be identified and recommended for implementation unless the Assistant Secretary of the Army (Civil Works), grants an exemption to this requirement.

Resolution: Seek ASA(CW) exception.

Resolution Impact: By memorandum dated 27 October 2005, the ASA(CW) granted an exception to the Administration policy requirement that the NED plan be recommended for implementation.



## May Branch, Fort Smith, Arkansas, Flood Damage Reduction Study

# Definition of Federal Interest

Concern: The feasibility report must distinguish between local drainage problems and larger flood reduction problems where there is Federal interest.

Reason: Federal interest in cost sharing is limited to that portion of the project located downstream from the point where the flood discharge is greater than 800 cfs for the 10-percent chance flood under conditions expected to prevail during the period of analysis.

Resolution: Define limit of Federal interest.

Resolution Impact: The limit of Federal interest was determined to be just upstream of Grand Avenue where the 10-percent chance flood flow equals 800 cfs. Federal interest in cost sharing project features is limited to Reaches 1 through 4 of the project. Reaches 5 and 6 of the project will be constructed at 100-percent non-Federal expense.



## May Branch, Fort Smith, Arkansas, Flood Damage Reduction Study

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### Definition of the LPP

Concern: The draft feasibility report incorrectly classified reaches 5 and 6 of the LPP as a “betterment.”

Reason: Reaches 5 and 6 do not satisfy the definition of “betterment” contained in the model project cooperation agreement (PCA) for Structural Flood Damage Reduction. The term does not include features not included in the “project” as defined in the PCA.

Resolution: Modify the definition of the LPP to comport with the Structural Flood Damage Reduction PCA model.

Resolution Impact: The definition of the LPP has been modified in the final feasibility report.



# Cost Sharing Railroad Embankment Modifications

Concern: The draft feasibility report did not correctly specify cost sharing for railroad embankment modifications

Reason: Classification of project features impacts the Federal and non-Federal shares of project costs.

Resolution: The proposed box culverts through railroad embankment segments are more properly classified as covered channel segments

Resolution/Impact: Railroad embankment modifications are classified as covered channel segments in the final report and are shared as project costs not relocations.





# Treatment of Relocation Assistance Payments

Concern: The economic evaluation in the draft report included relocation assistance payment costs in the computation of equivalent annual net benefits and benefit-cost ratio.

Reason: While relocation assistance payments are properly project financial costs, policy allows their exclusion from the economic evaluation of the project.

Resolution: Exclude relocation assistance payment costs from the economic evaluation.

Resolution Impact: The final report presentation includes relocation assistance payments in the project financial costs but excludes them from the project's economic costs



## May Branch, Fort Smith, Arkansas, Flood Damage Reduction Study

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### Business Income and Wage Losses

Concern: The economic appendix indicated that the array of benefits claimed included estimates of prevented business income and wage losses

Reason: Must document that such losses can not be compensated for by postponing an activity or transfer of the activity to other another location

Resolution: Given the difficulty in substantiating that such losses are not regional transfers, delete these benefits estimates from the economic evaluation

Resolution Impact: Estimates of business income and wage losses prevented were deleted from the array of benefits claimed



# HQUSACE Policy Compliance Review Team RECOMMENDATION

Release the report and EA for S&A Review





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# ***Lessons Learned***

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- Changed conditions and a more sophisticated analysis can increase the sponsor's risk that the study will not result in an economically justified plan despite previous analysis to the contrary.
- The study's overall schedule has to take into account the sponsor's resources in performing its in kind tasks as part of a cost-shared feasibility study.





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# ***SWD***

## ***Lessons Learned***

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- The public review process reached a wider audience due to posting the report on a website as well as by public notice.
- ITR completion at each study phase resolved technical issues.
- Better align written/revised policy with field and decision-maker needs. Waiver and review processes took longer than report preparation.

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